

Claims

1. A pump for pumping fluid comprising a first plunger and a second plunger each plunger being reciprocable within a respective plunger bore defined by a housing, wherein the first and second plungers together with the plunger bores define, at least in part, a pumping volume, the pump further comprising an inlet port and an outlet port, wherein an end of the first plunger is arranged to cover the inlet port during a pump delivery stage in which fluid is displaced from the pumping volume, wherein an end of the second plunger is arranged to cover the outlet port during a pump fill stage in which fuel is drawn into the pumping volume and wherein the end of the first plunger and the end of the second plunger are arranged to cover the inlet port and outlet port respectively during a pump transfer stage during which the pumping volume is maintained.
2. A pump according to claim 1, wherein the first and second plungers are aligned along a common axis.
3. A pump according to claim 1, wherein the first and second plungers are driven by means of a single cam ring.
4. A pump according to claim 1, wherein the first and second plungers are in a parallel-spaced relationship within their respective plunger bores, their respective plunger bores are in communication with one another by way of a connecting passage.
5. A pump according to claim 1, wherein the first and second plungers are adapted to only partially cover the inlet and outlet ports respectively.

6. A pump according to claim 1, wherein the pump comprises two or more pairs of plungers, each pair of plungers performing, in use, a pumping cycle and each pair of plungers having a respective inlet and outlet port.

7. A pump according to claim 6 wherein a pumping cycle phase difference of  $115^{\circ}$  to  $130^{\circ}$  exists between movement of the plungers of each plunger pair.

8. A pump according to claim 6 wherein a pumping cycle phase difference of  $120^{\circ}$  exists between movement of the plungers of each plunger pair.

9. A pump according to claim 6 wherein a pumping cycle phase difference of  $130^{\circ}$  exists between movement of the plungers of each plunger pair.

10. A pump for pumping fluid comprising:

two pairs of plungers, each pair of plungers performing, in use, a pumping cycle and comprising a first plunger and a second plunger and having a respective inlet and outlet port, each of the first plunger and the second plunger being reciprocable within a respective plunger bore defined by a housing;

wherein the first plunger and the second plunger of each pair define, together with their respective bores, a pumping volume;

an end of the first plunger of a pair is arranged to cover the inlet port during a pump delivery stage in which fluid is displaced from the pumping volume;

an end of the second plunger of a pair is arranged to cover the outlet port during a pump fill stage in which fuel is drawn into the pumping volume;

and wherein the end of the first plunger and the end of the second plunger of a pair are arranged to cover the inlet port and outlet port respectively during a pump transfer stage during which the pumping volume is kept substantially constant.

11. A common rail fuel pressurisation system comprising a pump according to claim 1.